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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,333	12/24/2001	William D. Slyva	EMC01-41(00024)	3305
7590	09/20/2005		EXAMINER	HERRING, VIRGIL A
Barry W. Chapin, Esq. CHAPIN & HUANG, L.L.C. Westborough Office Park 1700 West Park Drive Westborough, MA 01581			ART UNIT	PAPER NUMBER
			2132	
DATE MAILED: 09/20/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/036,333	SLYVA ET AL.
	Examiner Virgil Herring	Art Unit 2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on December 24, 2001.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-58 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on June 3, 2002 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date .

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

### **DETAILED ACTION**

This action is in response to the communication filed on December 24, 2001. Claims 1 through 58 have been submitted for examination. For the purposes of examination, it is assumed that claim 29 is dependent on claim 28, and claim 33 is dependent on claim 30.

At this time, claims 1-58 have been rejected.

#### ***Priority***

The application claims priority based on provisional application 60/268,778 filed on February 14, 2001.

This priority date is accepted for the purpose of examination.

#### ***Drawings***

The drawings were received on June 3, 2002. The corrections to the drawings are acceptable. However, other problems still exist.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of numerous errors in the use of reference characters. For example, "100," "101," and "102" are all used to refer to a computing system environment. "105" is used to designate both a user and a support engineer, and on page 28 the user is referred to

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as "185". "102-N" and "102-Y" are both used to designate Customer-B Computer Network. "182-1" is used to indicate 4 different items. "180" and "18" are alternatively called packet communications sessions and connections. "110" is used interchangeably to refer to a vendor computer network and a corporate LAN. There are many places in the text of the specification where the reference numbers are not used at all. For examples, please check line 10 of page 22, line 17 of page 24 lines 3, 6, 12, 13, and 29 of page 25. There are many more instances besides those enumerated here.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

A substitute specification, including the claims, is required pursuant to 37 CFR 1.125(a) because the disclosure is replete with errors. Besides the numerous errors in the drawing references, there are many errors throughout the specification and claims.

For example, the phrase "first packet first packet communications session" appears twice on page 10, twice on page 49, and twice on page 58. There are also many instances of "process" being used where "processor" would be more appropriate (see pages 54 and 68). The phrase "...to allow the computer system to perform the step performing packet communications between with the computer system and data storage system..." can be found in several claims, such as 12 and 36, as well as on page 14, line 1. The correct way to say this would be "...to allow the computer system to perform packet communications with the data storage system." Claims 16, 40, and 52 recite the limitation "receiving the second packet communications session state information in response to the step of forwarding" but do not elaborate on what was forwarded. The examiner further notes that "criteria" is a plural form of "criterion" (page 8, line 28 and page 9 line 1), that firmware is not a type of memory (page 16, line 17), that a "dss" is not defined, but is assumed to be a data storage system, or "DSS" (page 18, line 3), that the phrase "RAID array" is redundant, because the A in RAID stands for array (page 18, line 9), and finally, that this is a non-provisional application, rather than a provisional (page 1, line 1).

Please note that the errors mentioned by the examiner are examples only, and not a complete listing. The examiner strongly urges the applicant to carefully re-read the disclosure and correct the multifarious errors therein before resubmitting the application.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

### ***Claim Objections***

Claim 1 is objected to because of the following informality: the phrase "a packet communications sessions" in line 1. To correct this, applicant should remove "a" or make "sessions" singular.

Claim 3 is objected to because of the following informality: missing colon after “wherein the identity specifies at least one of”.

Claim 4 is objected to because of the following informality: “data storage system systems” in line 10 should read “data storage system identities.” For the purpose of examination, the examiner is using this substitution.

Claim 6 is objected to because of the following informalities: extra “first packet” in lines 13 and 18.

Claim 10 is objected to because of the following informality: “an user account computer system” should read “a user account computer system” since the article is referring to the system rather than the user.

Claim 12 is objected to because of the following informality: “to allow the computer system to perform the step performing packet communications between with the computer system and data storage system using the first and second packet communications sessions” in lines 21-23 should be revised. Since the computer system is performing the action in this clause, it should read “to allow the computer system to perform packet communications with the data storage system using the first and second packet communication sessions.”

Claim 14 is objected to because of the following informality: in line 3 "...including a an phone number..." should read "...including a phone number..."

Claim 16 is objected to because of the following informalities: in line 1, "...wherein the step performing..." should read "wherein the step of performing..." and in line 2, "with" should be removed.

Claim 22 is objected to because of the following informality: in line 1, "process" should be "processor".

Claim 25 is objected to because of the following informality: in line 9, the phrase "...a packet communications sessions..." should read either "...a packet communications session..." or "...packet communications sessions..."

Claim 30 is objected to because of the following informalities: extra "first packet" in lines 15 and 19.

Claim 34 is objected to because of the following informality: the phrase "...an user account computer system..." should read "...a user account computer system..." since the article is referring to the system rather than the user.

Claim 35 is objected to because of the following informality: in line 4, "operation" should be pluralized because more than one operation is listed in the text of the claim.

Claim 36 is objected to because of the following informality: in lines 21-24 the phrase "...to allow the computer system to perform the operation of performing packet communications between with the computer system and data storage system using the first and second packet communications sessions" should be revised. Since the computer system is performing the action in the clause, these lines should read "...to allow the computer system to perform packet communications with the data storage system using the first and second packet communications sessions."

Claim 38 is objected to because of the following informality: in line 3, the phrase "...an a phone number..." should read "...a phone number..."

Claim 40 is objected to because of the following informality: in lines 1-4, the phrase "...causes the computer system to perform the operation of performing packet communications between with the computer system and data storage system..." should be revised. Since the computer system is performing the action of this clause, the corrected version should read, "...causes the computer system to perform packet communications with the data storage system..."

Claim 41 is objected to because of the following informality: in lines 9-10, the phrase "...the data storage system to establishing a packet communications session..." should read "...the data storage system to establish a packet communications session..."

Claim 47 is objected to because of the following informality: in lines 14-15, the phrase "...performing packet communications between with the computer system and data storage system..." should be revised. Since the entity performing the action of this clause is a computer program product in a processor in a computer system, the phrase should read "...performing packet communications with the data storage system..."

Claim 48 is objected to because of the following informality: in line 7, there is no "and" before the last clause of the claim. This is inconsistent with the format used for claims 1-47.

Claim 50 is objected to because of the following informality: in line 9, there is no "and" before the last clause of the claim. This is inconsistent with the format of the preceding claims.

Claim 52 is objected to because of the following informality: in lines 2-4, the phrase "...the processor to perform the operation of performing packet communications between with the computer system and data storage system..." needs revision. Since

the processor is a part of the computer system of claim 47, the phrase should read  
“...the processor to perform packet communications with the data storage system...”

Claim 53 is objected to because of the following informalities: in line 3, the phrase “...a packet communications sessions...” should read either “a packet communications session” or “packet communications sessions,” and in line 8, the phrase “...to an initiator of the request...” should read “...to the initiator of the request...”

Claim 55 is objected to because of the following informality: “process” in line 2 should be “processor.”

Claim 56 is objected to because of the following informality: in lines 16-17, the phrase “...performing packet communications between with the computer system and data storage system...” should be revised. Since the entity performing this action is the computer system, the phrase should read “...performing packet communications with the data storage system...”

Claim 58 is objected to because of the following informality: line 4 is missing the word “and,” making it inconsistent with the format used in the preceding claims.

Appropriate correction of the aforementioned objections is required.

***Claim Rejections - 35 USC § 101 & 112***

Claims 29, 33, and 34 are rejected under 35 USC §101 and 112.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 29 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim preamble indicates that it is a method, but the claim from which it depends (claim 4) is a system, and thus claim 29 overlaps the two statutory classes.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter from a single statutory class which the applicant regards as the invention. The addition of method wording to a claim dependent on a system renders the claim language indefinite.

Claim 33 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim preamble indicates that it is a method, but the claim from which it depends (claim 6) is a system, and thus claim 33 overlaps the two statutory classes.

Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter from a single statutory class which the applicant regards as the invention. The addition of method wording to a claim dependent on a system renders the claim language indefinite.

Claim 34 is rejected under 35 U.S.C. 101 and 112, second paragraph because of its dependence on claim 33.

Claims 16, 40, 52, and 56 are rejected under 35 USC §112 second paragraph for failing to point out and distinctly claim the subject matter which the applicant regards as his or her invention.

As per claims 16, 40, and 52, the claims recite the limitation "receiving the second packet communications session state information in response to the step of forwarding;" in some form, but do not specify what was forwarded in that step. Besides being grammatically incomplete as a clause, these limitations do not provide enough information to allow a person skilled in the art to understand what is claimed.

As per claim 56, the claim recites the limitation “establishing a first packet communications session from the computer system to a data communications device capable;” but does not state what the data communications device is capable of doing. Aside from the fact that this is grammatically incomplete as a clause, the limitation does not provide enough information for a person skilled in the art to understand what is claimed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Wookey (507).

With respect to claim 1, Wookey (507) discloses in a computer system, a method for establishing a packet communications session to a data storage system, the method comprising steps of:

receiving a request to establish a communications session with a data storage system; (Col. 1, Lines 37-38: "the user of that computer system calls the remote service center.")

establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system; (See Fig. 3 from 313 to 303/301)

establishing a second packet communications session from the data communications device to a service processor associated with the data storage system; and (See Fig. 7 where monitored system is equivalent to the combination of a service processor and data storage system)

performing packet communications between the computer system and the service processor associated with the data storage system using the first and second packet communications sessions. (Col. 1, Lines 40-42: "a remote support engineer will log into the customer's system over a dial-up telephone line and perform analysis of the system and of any failures which have occurred.")

Though Wookey (507) does not specifically call the steps "first packet communications session" and "second packet communications session", it is well established in the computing world that communications over the Internet are packet-

based, including those using a dial-up connection. Figure 3 shows the layout of the service center of Wookey's disclosure, in which can be seen a plurality of packet communications sessions (service center engineer system to firewall, firewall to network terminal server, and network terminal server to modem pool).

With respect to claim 2, Wookey (507) discloses the method of claim 1 wherein the step of receiving a request to establish a communications session with a data storage system comprise the steps of:

- receiving user authentication for a user of the computer system;
- authenticating an identity of the user based on the user authentication information;
- receiving a data storage system identity indicating an identity of the data storage system to which the packet communications session is to be established.

In column 8, lines 42-45 Wookey (507) states that "It is possible to protect each monitor with a unique password so that only authorized administrative personnel can access a given monitor for modification." Wookey (507) discloses a system for remotely servicing multiple computer systems in which service personnel can receive information on which systems need service and then securely connect using established authentication techniques.

With respect to claim 3, Wookey (507) discloses the method of claim 2 wherein:

the request to establish a communications session with a data storage system includes the identity of the data storage system to which a communications session is to be established; and

wherein the identity specifies at least one of:

i) a phone number of a service processor modem associated

with the data storage system; (Col. 9, Lines 40-45)

ii) a serial number of the data storage system; and (Col. 4,

Lines 63-68)

iii) customer information related to a customer operating the

data storage system. (Col. 4, Lines 63-68)

With respect to claim 4, Wookey (507) discloses the method of claim 2 wherein the step of receiving data storage system identity information comprises the steps of:

receiving data storage system search criteria;

providing data storage system search criteria to a connection monitor computer system to produce a set of data storage system identities that meet the data storage system search criteria; and

receiving the set of data storage system identities that meet the data storage system search criteria; and

allowing the user to select at least one data storage system identity from the set of data storage system identities.

Wookey (507) discloses that at startup, administration software searches for all monitor software on the same subnet (Col. 13, Lines 13-20). Thus, the criterion of the search is simply “all computers connected to this computer.” This criterion is received from the administrator program code when the process begins to execute. The administrator software then displays a list of the accessible computers available for servicing, so that the user can select one to connect with (Fig. 8).

With respect to claim 5, Wookey (507) discloses the method of claim 4 wherein:

the data storage system search criteria is received from at least one of:

- i) a user of the computer system;
- ii) a service ticket identifying a data storage system;

the data storage system search criteria includes at least a portion of the user authentication information; and

the set of data storage system identities that meet the data storage system search criteria includes identities of data storage systems to which a user identified by the portion of the user authentication information is allowed to establish a packet communications session.

Since the invention of Wookey (507) searches for all connected computers when the administrator software starts running, one can say that the user supplies the search criteria by selecting which computers are on the same subnet as the computer running the administrator program (Col. 13, Lines 13-20). It is implicit that a program to inform

the user of errors in the connected computers will apprise the user of any errors discovered (in other words, presenting a service ticket to the user). Wookey (507) discloses, in lines 50-54 of column 10, that the diagnostic data of the connected computers is password protected so that nobody other than a qualified service center engineer can access the information. Thus, since the search criteria are determined by physical connections (hard-wired) to the service computer, and access to the service computer is restricted by an authentication control subsystem, it is possible to state that the user authentication is a part of the search criteria because the user authentication is a component of one of the computers in the network which defines the search criteria.

With respect to claim 6, Wookey (507) discloses the method of claim 1 wherein the step of establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system comprises the steps of:

obtaining connection information for a data communications device that is capable of communicating with the data storage system;

initiating the first packet communications session from the computer system to a data communications device using the connection information for the data communications device;

providing, to the data communications device, first packet communications session authentication information such that the data

communications device can determine if a user of the computer system is authorized to establish the first packet communications session; and

if the user of the computer system is authorized to establish the first packet communications session, allowing the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system; and

if the user of the computer system is not authorized to establish the first packet communications session, denying the ability of the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system.

Wookey (507) discloses, in lines 31-50 of column 9, the process by which a service computer is able to dial-in to a customer computer. The process requires the user to authenticate himself for the customer modem. The service modem then communicates connection information to the customer modem, at which point the customer modem can dial back using information specific to the service modem.

With respect to claim 7, Wookey (507) discloses the method of claim 6 wherein the step of obtaining connection information for the data communications device comprises the steps of:

providing, to a connection monitor computer system, a request for an address of a data communications device, the request including data communications device selection criteria allowing the connection monitor computer system to select and return an address of an available data communications device that is authorized to establish the second packet communications session to the data storage system; and (Col. 4, Lines 47-53)

receiving the address of the data communications device selected by the connection monitor computer system. (Col. 4, Lines 47-53)

Wookey (507) discloses one modem (data communications device) for each small network of customer computer systems. Column 9, lines 40-41 indicate that the computer at the service center stores customer modem connection information in its internal memory. In this situation, a request for the address of the data communications device would take the form of a command to read from the hard drive or RAM.

With respect to claim 25, Wookey (507) discloses a computer system comprising:

- a processor;
- an input-output mechanism;
- an interface capable of coupling to a computer network;
- a memory system encoded with a connection application;

an interconnection mechanism coupling the processor, the interface, and the memory system;

wherein, the processor performs the connection application as a connection process which causes the computer system to establish a packet communication sessions to a data storage system by performing the operations of:

receiving a request to establish a communications session with a data storage system; (Col. 1, Lines 37-42: "a user of that computer system calls the remote service center.")

establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system; (See Fig. 3 from 313 to 303/301)

establishing a second packet communications session from the data communications device to a service processor associated with the data storage system; and (See Fig. 7 where monitored system is equivalent to the combination of the service processor and data storage system)

performing packet communications between the computer system and the service processor associated with the data storage system using the first and second packet communications sessions. (Col. 1, Lines 37-42: "a remote support engineer will log into the customer's system over a

dial-up telephone line and perform analysis of the system and of any failures which have occurred.”)

Though Wookey (507) does not specifically call the steps “first packet communications session” and “second packet communications session”, it is well established in the computing world that communications over the Internet are packet-based, including those using a dial-up connection. Figure 3 shows the layout of the service center of Wookey’s discloser, in which can be seen a plurality of packet communications sessions (service center engineer system to firewall, firewall to network terminal server, and network terminal server to modem pool).

With respect to claim 26, Wookey (507) discloses the computer system of claim 25 wherein the connection process performs the operation of receiving a request to establish a communications session with a data storage system, the connection process causes the computer system to perform the operations of:

receiving user authentication for a user of the computer system;  
authenticating an identity of the user based on the user authentication information;  
receiving a data storage system identity indicating an identity of the data storage system to which the packet communications session is to be established.

In column 8, lines 42-45 Wookey (507) states that "It is possible to protect each monitor with a unique password so that only authorized administrative personnel can access a given monitor for modification." Wookey (507) discloses a system for remotely servicing multiple computer systems in which service personnel can receive information on which systems need service and then securely connect using established authentication techniques.

With respect to claim 27, Wookey (507) discloses the method of claim 26 wherein:

the request to establish a communications session with a data storage system includes the identity of the data storage system to which a communications session is to be established; and

wherein the identity specifies at least one of:

i) a phone number of a service processor modem associated

with the data storage system; (Col. 9, Lines 40-45)

ii) a serial number of the data storage system; and (Col. 4,

Lines 63-68)

iii) customer information related to a customer operating the

data storage system. (Col. 4, Lines 63-68)

With respect to claim 28, Wookey (507) discloses the computer system of claim 26 wherein when the connection process performs the operation of receiving data

storage system identity information, the connection process causes the computer system to perform the operations of:

receiving, via the input-output mechanism data storage system search criteria;

providing, via the interface, data storage system search criteria to a connection monitor computer system to produce a set of data storage system identities that meet the data storage system search criteria; and receiving, via the interface, the set of data storage system identities that meet the data storage system search criteria; and

allowing the user to select, via the input-output mechanism, at least one data storage system identity from the set of data storage system identities.

Wookey (507) discloses that at startup, administration software searches for all monitor software on the same subnet (Col. 13, Lines 13-20). Thus, the criterion of the search is simply “all computers connected to this computer.” This criterion is received from the administrator program code when the process begins to execute. The administrator software then displays a list of the accessible computers available for servicing, so that the user can select one to connect with (Fig. 8).

With respect to claim 29, Wookey (507) discloses the computer system of claim 4 wherein:

the data storage system search criteria is received from at least one of:

- i) a user of the computer system;
- ii) a service ticket identifying a data storage system;

the data storage system search criteria includes at least a portion of the user authentication information; and

the set of data storage system identities that meet the data storage system search criteria includes identities of data storage systems to which a user identified by the portion of the user authentication information is allowed to establish a packet communications session.

Since the invention of Wookey (507) searches for all connected computers when the administrator software starts running, one can say that the user supplies the search criteria by selecting which computers are on the same subnet as the computer running the administrator program (Col. 13, Lines 13-20). It is implicit that a program to inform the user of errors in the connected computers will apprise the user of any errors discovered (in other words, presenting a service ticket to the user). Wookey (507) discloses, in lines 50-54 of column 10, that the diagnostic data of the connected computers is password protected so that nobody other than a qualified service center engineer can access the information. Thus, since the search criteria are determined by physical connections (hard-wired) to the service computer, and access to the service computer is restricted by an authentication control subsystem, it is possible to state that

the user authentication is a part of the search criteria because the user authentication is a component of one of the computers in the network which defines the search criteria.

With respect to claim 30, Wookey (507) discloses the computer system of claim 25 wherein when the connection process causes the computer system to perform the operation of establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system, the connection process causes the computer system to perform the operations of:

obtaining connection information for a data communications device that is capable of communicating with the data storage system;

initiating the first packet communications session from the computer system to a data communications device using the connection information for the data communications device;

providing, to the data communications device, first packet communications session authentication information such that the data communications device can determine if a user of the computer system is authorized to establish the first packet communications session; and

if the user of the computer system is authorized to establish the first packet communications session, allowing the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system; and

if the user of the computer system is not authorized to establish the first packet communications session, denying the ability of the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system.

Wookey (507) discloses, in lines 31-50 of column 9, the process by which a service computer is able to dial-in to a customer computer. The process requires the user to authenticate himself for the customer modem. The service modem then communicates connection information to the customer modem, at which point the customer modem can dial back using information specific to the service modem.

With respect to claim 31, Wookey (507) discloses the method of claim 30 wherein the step of obtaining connection information for the data communications device comprises the steps of:

providing, to a connection monitor computer system, a request for an address of a data communications device, the request including data communications device selection criteria allowing the connection monitor computer system to select and return an address of an available data communications device that is authorized to establish the second packet communications session to the data storage system; and (Col. 4, Lines

receiving the address of the data communications device selected by the connection monitor computer system. (Col. 4, Lines 47-53)

Wookey (507) discloses one modem (data communications device) for each small network of customer computer systems. Column 9, lines 40-41 indicate that the computer at the service center stores customer modem connection information in its internal memory. In this situation, a request for the address of the data communications device would take the form of a command to read from the hard drive or RAM.

With respect to claim 47, Wookey (507) discloses a computer program product having a computer-readable medium including computer program logic instructions encoded thereon that when performed in a computer system, causes the computer system to establish a packet communications session to a data storage system, and wherein when the computer program logic is performed on a processor in the computer system, the computer program logic causes the processor to perform the operations of:

receiving a request to establish a communications session with a data storage system; (Col. 1, Lines 37-42: "user of that computer system calls the remote service center.")

establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system; (See Fig. 3 from 313 to 303/301)

establishing a second packet communications session from the data communications device to a service processor associated with the data storage system; and (See Fig. 7 where monitored system is equivalent to the combination of the service processor and data storage system)

performing packet communications between the computer system and the service processor associated with the data storage system using the first and second packet communications sessions. (Col. 1, Lines 37-42: "a remote support engineer will log into the customer's system over a dial-up telephone line and perform analysis of the system and of any failures which have occurred.")

Though Wookey (507) does not specifically call the steps "first packet communications session" and "second packet communications session", it is well established in the computing world that communications over the Internet are packet-based, including those using a dial-up connection. Figure 3 shows the layout of the service center of Wookey's disclosure, in which can be seen a plurality of packet communications sessions (service center engineer system to firewall, firewall to network terminal server, and network terminal server to modem pool).

With respect to claim 48, Wookey (507) discloses the computer program product of claim 47 wherein the computer program logic that, when performed on the processor,

causes the processor to perform the operation of receiving a request to establish a communications session with a data storage system, further includes instructions that, when performed on the processor, cause the processor to perform the operations of:

- receiving user authentication for a user of the computer system;
- authenticating an identity of the user based on the user authentication information;
- receiving a data storage system identity indicating an identity of the data storage system to which the packet communications session is to be established.

In column 8, lines 42-45 Wookey (507) states that "It is possible to protect each monitor with a unique password so that only authorized administrative personnel can access a given monitor for modification." Wookey (507) discloses a system for remotely servicing multiple computer systems in which service personnel can receive information on which systems need service and then securely connect using established authentication techniques.

With respect to claim 49, Wookey (507) discloses the computer program product of claim 47 wherein the compute program logic that, when performed on the processor, causes the processor to perform the operation of establishing a first packet communications session from the computer system to a data communications device capable of communicating with the data storage system, further includes instructions

that, when performed on the processor, cause the processor to perform the operations of:

obtaining connection information for a data communications device that is capable of communicating with the data storage system;

initiating the first packet communications session from the computer system to a data communications device using the connection information for the data communications device;

providing, to the data communications device, first packet communications session authentication information such that the data communications device can determine if a user of the computer system is authorized to establish the first packet communications session; and

if the user of the computer system is authorized to establish the first packet communications session, allowing the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system; and

if the user of the computer system is not authorized to establish the first packet communications session, denying the ability of the computer system to perform the step of establishing a second packet communications session from the data communications device to the data storage system.

Wookey (507) discloses, in lines 31-50 of column 9, the process by which a service computer is able to dial-in to a customer computer. The process requires the user to authenticate himself for the customer modem. The service modem then communicates connection information to the customer modem, at which point the customer modem can dial back using information specific to the service modem.

With respect to claim 56, Wookey (507) discloses a system for establishing packet communications between a computer system and a data storage system, the system comprising:

a vendor computer network including at least one computer system and at least one data communications device capable of communicating with a computer network other than the vendor computer network;

the computer system equipped with a connection application that when performed as a connection process in the computer system causes the computer system to perform the operations of:

receiving a request to establish a communications session with a data storage system; (Col. 1, Lines 37-42: "a user of that computer system calls the remote service center.")

establishing a first packet communications session from the computer system to a data communications device

capable of communicating with the data storage system;

(See Fig. 3 from 313 to 303/301)

establishing a second packet communications session from the data communications device to a service processor associated with the data storage system; and

(See Fig. 7 where the monitored system is equivalent to the combination of the service processor and data storage system)

performing packet communications between the computer system and the service processor associated with the data storage system using the first and second packet communications sessions. (Col. 1, Lines 37-42: "a remote support engineer will log into the customers' system over a dial-up telephone line and perform analysis of the system and of any failures which have occurred.")

Though Wookey (507) does not specifically call the steps "first packet communications session" and "second packet communications session", it is well established in the computing world that communications over the Internet are packet-based, including those using a dial-up connection. Figure 3 shows the layout of the service center of Wookey's disclosure, in which can be seen a plurality of packet

communications sessions (service center engineer system to firewall, firewall to network terminal server, and network terminal server to modem pool).

With respect to claims 8 and 32, Wookey (507) discloses the method of claim 7 or 31 wherein the request for an address of the data communications device includes at least one of:

- i) a portion of the user authentication information; (Col. 8, Lines 42-45)
- ii) customer information concerning a customer operating the data storage system; and (Col. 4, Lines 62-65)
- iii) connection information associated with the data storage system; and (Col. 4, Lines 62-65)

wherein the connection monitor computer system compares the request for an address against user and customer data to determine what data storage systems a user providing the request is allowed to access. (Col. 8, Lines 42-45)

Wookey (507) explains in column 8 that "it is possible to protect each monitor with a unique password so that only authorized administrative personnel can access a given monitor for modification." Protection with a unique password implies the use of user authentication information. Additionally, connection information associated with the system to which the user is attempting to connect would be inherently required. It is known to those in the art that connection authorization will involve comparing user data with data associated with the remote system. In this case, that would mean comparing

the administrator's user data with the customer's information to determine if the administrator is authorized to modify that customer's monitor.

With respect to claims 9 and 33, Wookey (507) discloses the method of claim 6 or 30 wherein:

the step of initiating the first packet communications session establishes an internet protocol communications session between the computer system and the data communications device; and (Col.4 , Lines 47-50)

wherein the step of providing, to the data communications device, first packet communications session authentication information passes user authentication information from the computer system to the data communications device to allow the data communications device to authorize the internet protocol communications session. (Col. 8, Lines 42-45)

In column 4, Wookey (507) discloses that the modems of the vendor's modem pool are configured to connect to modems of the customer's monitored systems, and that the connection is under the control of a network terminal server. Thus, he has a communications session between a computer system and a data communications device. Since another connection between the data communications device and the monitored system exists implicitly, the connection from the vendor computer system to the data communications device can be described as the first packet communications session. Similarly, the connection from the data communications device is the second

packet communications session. In column 8, Wookey (507) discloses the protection of the monitored computer systems using a unique password. A password implies authentication of the user at some point in the connection setup process. Authenticating the user to the remote network's server (the data communications device) is a well-known step in internet protocol communications.

With respect to claims 10 and 34, Wookey (507) discloses the method of claim 9 wherein the step of providing, to the data communications device, first packet communications session authentication information causes the data communications device to communicate with a user account computer system to verify if the user of the computer system identified in the user authentication information is authorized to cause the data communications device to establish the first and second packet communications sessions from the computer system, through the data communications device, to the data storage system. (Col. 8, Lines 42-45)

Because the data communications device is a router or modem, a list of valid users would have to be stored elsewhere, because routers and modems have very little internal memory, which is used only to store the device's firmware and a list of valid IP addresses, or conversely, a list of blocked IP addresses. Thus, a separate computer system, which contains a list of valid users and their passwords, must exist inherently, and the data communications device must be able to communicate with it.

With respect to claims 11, 35, and 50, Wookey (507) discloses the method of claim 1 or 25 or 47 wherein the step of establishing a second packet communications session from the data communications device to the data storage system comprises the steps of:

providing, to the data communications device, second packet communications session connection information allowing the data communications device to initiate the second packet communications session from the data communications device to the data storage system; (Col. 4, Lines 47-50)

receiving second packet communications session state information indicating a state of the second packet communication session between the data communications device and the data storage system. (Col. 9, Lines 52-65)

In column 4, Wookey (507) discloses the connection of the vendor modem to a customer modem under the control of a network terminal server. This clearly shows a first packet communications session from the vendor modem to the server, and a second packet communications session from the server to the customer modem. In this case, the network terminal server is acting as a router (data communications device). Those skilled in the art will recognize that in order to establish the connection between the router and the customer computer the user wishes to access, the router must be provided session information indicating to which computer the connection should be made. Column 9 shows the login and verification process for the connection. It is

inherent that if verification is being carried out, then all parties involved in the verification are aware of it. Thus, at some point the data communications device must have received second packet communications session state information, which it would pass on to the vendor computer.

With regards to claims 12 and 36, Wookey (507) discloses the method of claim 11 or 35 wherein:

the second packet communications session connection information includes data storage system connection information associated with the data storage system and user authentication information of the user of the computer system; and (Col. 9, Lines 52-55)

wherein the step of providing the second packet communications session connection information to the data communications device causes the data communications device to perform the steps of:

initiating the second packet communications session from the data communications device to the data storage system using the data storage system connection information; (Col. 9, Lines 52-55)

providing the user authentication information to a remote access server associated with the data storage system to allow the remote access server to authorize the establishment of the second packet communications session from the data communications device to the data storage system; (Col. 8, Lines 42-48)

receiving data storage system address information at the data communications device identifying an address of the data storage system to allow the data communications device to establish the second packet communications session; and (Col. 9, lines 52-55)

forwarding second packet communications session state information to the computer system from the data communications device to allow the computer system to perform packet communications between the computer system and data storage system using the first and second packet communications sessions. (Col. 9, Lines 52-55)

It is inherent to the system that the second packet communications session, between a router and the customer computer, must contain connection information for the customer computer. If it did not, the router would not know to which computer the user wishes to connect. Additionally, the inclusion of the user authentication information would be inherent, because without that information the customer computer would not know if the person attempting to establish a connection is a valid administrator. The steps listed in the connection procedure are also inherent requirements. Initiating the second packet communications session is inherent because that was the whole purpose of the connection process. Providing the user authentication information to a remote access server associated with the data storage system is inherent because that is the reason for having the user authentication information. Were it not provided to a server tasked to verification of remote users, then the data storage system would have

no way of knowing if the user information is valid. The data communications device must inherently receive data storage system address information so that it can be sure that the correct connection was made. Finally, forwarding the second packet communications session state information to the vendor's computer system is inherent because if the state information were not forwarded, the vendor's computer system would have no way of knowing if the connection to the data storage system was successful.

With respect to claims 13, 37, and 51, Wookey (507) discloses the method of claim 12 or 36 or 50 wherein the data storage system address information is a pre-configured network address assigned to the service processor associated with the data storage system.

Though it is never named as such, Wookey (507) inherently discloses the data storage system address information. It is known to those in the art that any computer system on a network or the Internet will always have an IP address or a modem phone number, which is the address of the computer on the network.

With regards to claims 14 and 38, Wookey (507) discloses the method of claim 12 or 36 wherein:

the second packet communications session connection information includes data storage system connection information including a phone number

of a service processor modem associated with the service processor associated with the data storage system; and (Col. 4, Lines 46-68)

wherein the step of initiating the second packet communications session from the data communications device to the data storage system causes the data communications device to instruct a modem to dial the phone number of a service processor modem in order to establish a dial up connection to the data storage system from the data communications device. (Col. 4, Lines 47-49)

Wookey (507) discloses a dialup connection between the vendor's computer system and a monitoring computer connected to one or more monitored systems. It is known to those in the art that in the process of communicating between the vendor's computer and the monitoring computer, packet communication sessions are established between the vendor computer, a router (data communications device) and the monitoring computer. If the vendor's modem is to dial the customer's modem, the phone number of the customer's modem is an inherent part of the information which must be transferred.

With respect to claims 15 and 39, Wookey (507) discloses the method of claim 12 or 36 wherein:

the second packet communications session state information includes the data storage system address information and includes data storage system connection bandwidth information; and

wherein the step of forwarding second packet communications session state information to the computer system from the data communications device causes the data communications device to perform the step of:

forwarding the second packet communications session state information to a network manager computer system which receives the second packet communications session state information and forwards routing information to the computer system so that the computer system can perform packet communications with the data storage system. (Col. 4, Lines 49-52)

It is known to those in the art that communications session information is passed between two computers that are attempting to communicate with each other. This state information includes the address information for all involved computers, as well as connection speed information (bandwidth). If this information is not provided the computers will not have the knowledge necessary to communicate correctly. Wookey (507) discloses a connectivity server 304 that manages connections to the modem pool 301 inside the service center 101. One skilled in the art would recognize that a server that provides links to a modem pool would receive communications session information before finalizing the link between the vendor's computer and the service center modem pool.

With respect to claims 16, 40, and 52, Wookey (507) discloses the method of claim 12, 35, or 47 wherein the step performing packet communications between the

computer system and the service processor associated with the data storage system comprises the steps of:

receiving the second packet communications session state information in response to the step of forwarding;

adjusting connection bandwidth associated with the first packet communications session to match connection bandwidth associated with the second packet communications session;

providing computer system address information to the data storage system so that the data storage system can establish a route to the computer system; and

using the first packet communications session between the computer system and the data communications device and the second packet communications session between the data communications device and the service processor associated with the data storage system to perform packet communications between the computer system and the service processor associated with the data storage system.

Though Wookey (507) does not go into great detail describing the connection process, he does disclose that the connection is secure and authenticated. From this knowledge, one skilled in the art would recognize that communications session state information would be available to all the communicating parties. This information typically includes such data items as the addresses of the computers and the

connection bandwidth. It is inherent that the bandwidth must be adjusted to a uniform rate to prevent lost packets. If one computer is sending packets faster than the other computer is prepared to receive them, the information is simply lost. It is also inherent that since all the computers involved in the communications need to know the addresses of the other computers, providing the computer system address information to the data storage system is a necessity. Finally, it is inherent that after all the time taken to set up a secure communications channel, that the channel would be used to perform packet communications between the computer system and the service processor associated with the data storage system.

With respect to claim 17, Wookey (507) discloses the method of claim 1 wherein the step of receiving a request to initiate a communications session with the data storage system further comprises the steps of:

receiving a service ticket from the data storage system; and (Col. 3, Lines 40-45)  
analyzing the service ticket to determine an identity of the data storage system to which a packet communications session is to be established from the computer system. (Col. 3, Lines 62-67; Col. 4, Lines 1-3)

Wookey (507) discloses how the customer systems periodically perform a variety of diagnostic tests and transmit the results to the remote service center. Though he does not use the phrase "service ticket," the functionality is the same. It is well known to those in the computing art that data transmitted from one computer to another (such

as a service ticket) will contain information regarding the origin of the data. Because Wookey (507) discloses a database of customer information, including the history of "diagnostic tests and patches that exist for a particular product" (Col. 4, Lines 66-67), the diagnostic information must be associated in the database to whatever customer system generated the information. Thus, it is inherent that any diagnostic information transmitted to the service center can be analyzed to determine its origin. Since this information includes "error messages from log files, system crash data" etc. (Col. 3, Lines 63-64), the staff at the service center will know when to initiate communications to the customer system.

With respect to claim 18, Wookey (507) discloses the method of claim 1 wherein the steps of establishing a first packet communications session, establishing a second packet communications session, and performing packet communications are performed using secure and authenticated communications sessions. (Col. 10, Lines 55-60)

With respect to claims 19, 41, and 53, Wookey (507) discloses, in a processor in a data storage system a method for establishing a packet communications session with a computer system, the method comprising the steps of:

receiving a request to initiate a packet communications session; (Col. 1, Lines 37-40)  
providing data storage system address information to an initiator of the request;

receiving computer system address information to allow the processor in the data storage system to perform packet communications with the computer system; and establishing a packet communications session with the computer system based on the computer system address information. (Col. 1, Lines 40-42)

Wookey (507) describes how a remote support engineer will initiate a dial-up connection to a computer to perform analysis and maintenance. Those skilled in the art will recognize that dial-up connections, like other Internet connections, are inherently packet-based. Because connection information (such as an IP address, modem phone number, and connection bandwidth) is required for packet communications, it is inherent that at some point the monitored site provides its address information. Similarly, it is inherent that at some point the monitored site will also receive address information from the computer at the service center.

With respect to claims 20, 42, and 54, Wookey (507) discloses the method of claim 19, 41, or 53 wherein:

the request to initiate a packet communications session includes user authentication information of a user of the computer system; and (Col. 9, Lines 5-7) wherein the method further comprises the step of authenticating an identity of the user based on the user authentication information in order to authorize the establishment of the packet communications session to the data storage system. (Col. 8, Lines 42-45)

Wookey (507) describes in several places the use of authentication information to prevent unauthorized service center personnel from accessing the monitoring software installed at the monitored sites. Column 1, lines 38-43 show that this can be applied in such a way that the authorized service center personnel can log into the customer's system at the monitored site to troubleshoot errors that have been encountered.

With respect to claims 21 and 43, Wookey (507) discloses the method of claim 20 or 42, further comprising the steps of:

in response to the step of authenticating an identity of the user, the processor establishes a packet communications session with a data communications device from which the request to initiate a packet communications session originates. (Col. 4, Lines 12-16)

Wookey (507) discloses that some embodiments of the invention can include the use of the Internet. Those skilled in the computer networking art will recognize that communications over the Internet will require that the data pass through at least one router (data communications device) between its source and its destination. It is inherent that if the data is going through a router, at some point the source computer and destination computer will both have to establish packet communications sessions with the router.

With respect to claims 22, 44, and 55, Wookey (507) discloses the method of claim 21, 43, or 53 wherein the processor is a service processor in the data storage system and the data storage system address information is a pre-configured network address assigned to the service processor associated with the data storage system by a vendor of the data storage system. (Col. 3, Lines 56-59; Col. 4, Lines 12-16)

In column 3, Wookey (507) describes a master monitoring computer at each monitored site, and that this master computer collects the diagnostic information for each monitored computer on the network. This system can be seen in Wookey's figure 1. This is analogous to the service processor of the data storage system, which is depicted in applicant's figure 3 as a computer connected to the data storage system. In regards to the second limitation of the claims, those skilled in the computer arts would know that in Internet communications, every computer has a pre-configured network address assigned to it, known as its IP address.

With respect to claims 23 and 45, Wookey (507) discloses the method of claim 19 or 41 wherein:

the request to initiate a packet communications session is sent from a data communications device interconnected with the computer system; and (Col. 4, Lines 12-17)

wherein the step of providing data storage system address information provides a network address of the processor in the data storage system to the data

communications device for receipt by the computer system to allow the computer system to perform packet communications to the data storage system. (Col. 4, Lines 12-17)

Wookey (507) discloses that, "for embodiments in which the internet is used to transmit diagnostic results, the monitored system initiates provision of the diagnostic results without any intervention of the service center." In other words, the monitored system initiates communications over the Internet to the service center. As previously discussed, communications over the Internet necessitate that the data crosses one or more routers between its source and its destination. Thus, when the monitored system is attempting to establish communications with the service center, it sends a request to a router, and the router forwards the request to the service center. Also as previously mentioned, communications between two computers inherently include the transmission of address information for each computer. In communications over the Internet, this would be the IP address (i.e. the network address) of each computer.

With respect to claims 24 and 46, Wookey (507) discloses the method of claim 19 or 41 the step of establishing a packet communications session with the computer system establishes route information within the data storage system based on the computer system address information to allow the processor to perform packet communications with the computer system. (Col. 4, Lines 12-17)

Though Wookey (507) does not go into great detail about the connection process, those skilled in the art will realize that communications over the Internet include packet routing information to ensure that no data is lost en route.

In regards to claim 57, Wookey (507) discloses the system of claim 56 wherein:  
the computer network other than the vendor computer network is a customer computer network; (Figs. 1 and 4)

the data storage system is coupled to the customer computer network; (Figs. 1 and 4)

the connection process is operated by a vendor support engineer in order to provide remote support to the data storage system on the customer computer network; and (Col. 8, Lines 42-45)

the second packet communications session is established from the data communications device to a service processor associated with the data storage system to allow the support engineer operating the connection process to remotely maintain the data storage system using the first and second packet communications sessions. (Col. 8, Lines 42-45)

Wookey (507) discloses in column 8 that, "it is possible to protect each monitor with a unique password so that only authorized administrative personnel can access a given monitor for modification." This implies that those administrative personnel from the service center who are authorized to access a monitor at a customer site are

allowed to establish communications via some communications process. Thus, the service personnel are operating a communications process (such as a telnet or ssh connection) to establish communications to the monitored site. Wookey's figures 1 and 4 show a monitored site consisting of a master monitor and a plurality of connected computers. Because a computer will always store some kind of data somehow (whether in a hard drive or in RAM), any computer is a data storage system. Thus, we have personnel from the service center operating a communications process to perform packet communications with a data storage system.

With respect to claim 58, Wookey (507) discloses the system of claim 57 further including:

within the vendor computer network, means for authenticating an identity of the support engineer and authorizing the establishment of the first packet communications session; (Col. 8, Lines 42-45)

means for authenticating an identity of the support engineer and authorizing the establishment of the second packet communications session. (Col. 8, Lines 42-45)

Wookey (507) discloses the use of password protection for the monitored sites. This implies some kind of authentication is taking place. Furthermore, one skilled in the art would recognize that if the user is authenticated at the monitored site, he or she would have gone through a similar authentication process at the vendor site before being allowed to access a computer to initiate communications with the customer site.

### ***Conclusion***

References cited but not applied are considered relevant by the examiner, as they are related to the topic of remote management of computers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virgil Herring whose telephone number is (571) 272-8189. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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